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NOTES ON THE SEAL AND WHALE FISHERY OF 1901.

By Thomas Southwell, F.Z.S.

The Newfoundland sealing, although as a whole fairly successful in the past season, presented some interesting features which will be referred to farther on. The number of steamers which left port was twenty—an increase of one, namely, the 'Southern Cross,' which made her first sealing voyage, having been purchased by Messrs. Murray and Sons on her return from her Antarctic exploration voyage of 1899–1900; but, as the 'Hope' came to an untimely end, the number actually employed was the same as in the season of 1900. Of these, four vessels went to the Gulf fishery; the rest to the east coast.

The usual day for the departure of the steamers is the 10th of March, but that day falling on Sunday in 1901, the vessels took their departure on the 9th, and, finding the young Seals almost at once, some very speedy returns were the result. The first to arrive was the 'Southern Cross,' which reached Harbour Grace on the 20th of March, after an absence of only nine and a half days, with a cargo of 26,563 Seals; she was quickly followed by the 'Aurora,' which arrived at St. John's on the morning of the 22nd, heavily laden with the produce of 32,407 old and young Harps and Hooded Seals; others arrived in rapid succession. The 'Southern Cross' reached the whelping ice, some eighty miles north by east of the Funk Islands, on the morning of the 12th March, and had the monopoly of the locality for some time;

this enabled her to load up very rapidly with young Harps, of which she killed 26,361, and only 202 old Seals. She was thus quite independent of the Hooded Seals, of which most of the other vessels went in search after taking in the young Harps; hence her speedy return, making what I believe was the most rapid voyage on record. On her homeward voyage she experienced a fearful storm on the night of the 19th of March, and sought shelter at Perlican, where she was nearly driven on shore, and had to beat about the bay all night, but reached Harbour Grace in safety next morning. The 'Aurora' also made a very successful and rapid voyage; she met with bad weather, but struck the main patch on the morning of the 12th. By the night of the 15th, although she had been joined by other vessels, which took their share, she had taken on board 25,000 Harp Seals, and then departed in a north-easterly direction in search of the Hooded Seals, coming up with them on the afternoon of the 18th. Between that time and the morning of the 20th she had secured 7000. The latter part of the voyage would have been unnecessary, but that, less fortunate than the 'Southern Cross,' she lost seventy-two "flags," representing some 10,000 Seals; it is said these were unfairly appropriated by other vessels fishing in the neighbourhood. Unfortunately this is not the only complaint of a similar character which has been heard of this year. The result of her voyage was 25,210 young and 306 old Harps, and 4020 young and 2871 old Hoods; the young Harps, like all those killed early in the season, being of very light weight. With regard to this, I shall have some observations to make later on. The 'Nimrod' arrived on the 7th April with 13,055 Seals, and the 'Terra Nova' on the 23rd with 19,275; some 10,000 of these were old Harps and Hoods, some said to have been of enormous weight; her delivery was 650 tons net. All her old Seals were taken prior to the 8th of April, on which day she was beset and drifted about for some time in the vicinity of Groais Island. The 'Iceland' came in contact with an iceberg on the 11th March, sustaining considerable damage, and injuring two of her crew; but, as she was running slow at the time, a fatal disaster was avoided; she, however, secured 20,150 Seals. The 'Virginia Lake' was the most unfortunate vessel of this section of the fleet; on the 27th of March she was caught in the

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ice near Groais Island, in the same locality as the 'Terra Nova,' and remained beset till the 6th of April, when, after much sawing and blasting of the ice, she got free, only to be again caught in the floe off Partridge Point (White Bay), remaining fast till the end of the month; finally, after sundry other adventures, arriving safely at St. John's on the 5th of May with 19,605 Seals.

The Gulf sealing was practically a failure. Four vessels, namely, the 'Harlaw,' 'Panther,' 'Kite,' and 'Hope,' took part in this section of the voyage; the 'Harlaw' and the 'Panther' only securing 400 and 4855 Seals respectively; the 'Kite' got jammed in the ice off Prince Edward's Island, and at one time was in a situation of great peril, but eventually reached Channel in safety on the 27th April with a cargo of 8216 Seals; of these 900 were old Harps and 400 old Hoods, which yielded a weight of fat and pelts about equal to 10,000 young Harps. From the 13th March to the 23rd she is reported to have killed twice the number of Seals she could possibly carry, but frightful weather setting in, she only succeeded in getting 7000 young Harps on board. The remaining vessel, the 'Hope,' was unfortunately driven on shore on Byron Island, one of the Magdalen group, and became a total wreck, with 5000 Seals on board. Happily her crew of 194 men landed safely on the island, whence they were subsequently rescued by the 'Greenland,' which departed from St. John's for that purpose. The 'Hope' was rather a notable vessel. In 1873 she sailed from Peterhead on her first whaling voyage, commanded by Capt. John Gray, a member of a family celebrated for generations as successful whalers, and was employed in 1882 in the rescue of the crew of Mr. Leigh Smith's yacht, the 'Eira,' which foundered off Cape Flora, Franz Josef Land, in the previous year; in 1892 she passed into the ownership of Messrs. Baine Johnson and Co., and has been since that time employed in the Newfoundland sealing.

In addition to the young Harps got in the Gulf fishery being, like those off the east coast, smaller than usual, the failure of the fishery in this locality was also due to the heavy gale early in April which proved destructive to the 'Hope,' broke up the whelping ice, and either swept the young Seals into the sea, or separated them from their parents, so dispersing the pack that the steamers could not come near them in any quantity. Any

Harps that were got were in the western locality, those frequenting the eastern ice, once more, so far as Mr. Thorburn could learn, never having been seen. The same state of things prevailed with regard to the ice frequented by the Hoods, and with a like result.

The Newfoundland winter proved very severe, but after the latter end of January the weather moderated, and a fine spring followed. As there was very little drift-ice off the coast, a favourable sealing year was anticipated, and, so far as the early finding of the Seals was concerned, this was fully realized; but, although killing commenced on the same day as last year, the young Seals were very much inferior in weight, averaging something like 35 lb. in fat and pelt against 50 lb. in the previous season. Mr. Thorburn, with his usual kindness, has been at some trouble to ascertain, if possible, the true cause of this falling off in weight, and he tells me that, in the opinion of several of the most experienced captains, it is mainly due to the fact that for some reason the Seals whelped some days later this year than last; for instance, the people living in Belvoir Bay reported to Capt. Blandford that the old Seals did not go off from there so soon as usual in search of the whelping ice, which he considers sufficient evidence that they reproduced later than last year. Under favourable conditions the young Seals increase in weight from two to four pounds daily; this rate of increase is not mere conjecture, but has been proved by experiment. It is, however, believed by many that mild weather retards their growth; this has not been so fully established, but it is known that much rain causes them to leave the ice, and take to the water considerably earlier than they otherwise would. Another reason for the reduced average in weight is that the killing was all over in a very short period, leaving no time for the young ones to increase in weight, in which respect even a few days, as has been explained, would make a considerable difference. This is further borne out by the facts that those steamers which struck the Seals on the shore side of the whelping ice—that is to say, the south-west pack—(as is usually the case), secured heavier results than those fishing on the outside or north-east ice, owing to the Seals whelping in the former locality somewhat earlier than the latter.

A much larger number of old and young Hooded Seals were got this year off the east coast than usual. To show the relative results of the two years, I give the returns for the last two seasons of the nineteen steamers:—

	No. killed.	Net weight.	Approximate value.
1900	353,276	7523 tons	£96,720
1901	345,380	6651 ,,	77,819

On the same basis as last year the produce of 1901 should have weighed 7354 tons, a difference of 703 tons; whereas the actual difference was 872 tons, or a loss of 169 tons.

The 'Aurora' made the largest catch, *viz.* 32,407; the 'Neptune' next, with 27,628. There were eleven others above 15,000, and three others above 10,000, leaving two, the 'Kite' with only 8,216, and the 'Harlaw' with 453, both of which went to the Gulf fishery, which, as has been already explained, was virtually a failure. The average of the whole was 18,178, ten vessels having more than that number, and nine less. The estimated value of the produce, at about the same rate as last year, is given above. Pale Seal-oil was worth £23 per tun of 252 gallons.

The St. John's 'Evening Telegram,' commenting upon the immature quality of the Harp Seals brought in this season, advocates a further amendment of the sealing laws, with a view to postponing the departure of the ships until the 12th or 13th of March, pointing out the enormous loss incurred by the destruction of the extra number of small Seals killed to make up the weight of a full cargo; but, on the other hand, there are those who deprecate the too frequent alterations in the sealing laws, or the attempt to legislate for an abnormal season such as that just passed certainly was.

Since the season of 1897 only three Right Whales have been seen in the Greenland Seas by the Scotch whalers, two of which were killed. It is not surprising therefore that in the past season, for the first time for I know not how many years, not a single British whaler has visited the once prolific seas between East Greenland and Spitzbergen. Whether the Whales are actually worked out, or whether they will again be found when the ice returns to its normal condition in these seas—a change in which direction seems to have already set in—I cannot venture an opinion; but the fact remains that the once highly remunerative industry, both as regards Seals and Whales, so far as the British vessels are concerned, has—at least, for the present—come to an end.

In Davis Straits, on the other hand, there was no scarcity of Whales, although, owing to the unfavourable condition of the ice and the prevalence of stormy weather, the success was not great. Five vessels left Dundee, and the 'Alert' from Peterhead, as usual, brought home produce from the Cumberland Gulf station. Of the five Dundee vessels, four fished in Davis Straits, and the 'Active' visited the trading station in Southampton Island, whence she returned with the produce of 5 Whales, 262 Walrus, and 76 Bears. Three of these Whales were killed in the spring at the station, and two in September by the 'Active'; but as the total yield is given as 25 tuns of oil, and 30 cwt. of bone, they must have been very small ones. Much time was lost by the 'Active' searching in Fox Channel, Fisher Strait, and the adjacent waters for the Yarmouth trawler 'Problem,' which, as will be mentioned farther on, was to have met her at the station.

The 'Nova Zembla' was the first Davis Straits vessel to arrive at Dundee on the 7th of October. She had experienced bad weather, heavy ice, and a succession of mishaps to her machinery. Several Whales were seen by her, but it was not till the 20th of July that she succeeded in killing her first and only fish at the middle fishing-ground; this was a very small one, yielding only about 4 tuns of oil and 3 cwt. of bone; after this no others were seen. In September she killed 418 White Whales in Cumberland Gulf, and with these and 26 Bears bore up for home. The 'Eclipse' had a most adventurous voyage, experiencing terrible weather from the time she left Dundee till her return on the 29th of October. When Whales were seen it was impossible to send the boats in pursuit, owing to the heavy ice; but at last she was rewarded by a fine Whale of 11 ft. 10 in. bone, and a month later a second was brought alongside; but so rough was the weather that the carcase was washed away before flensing was completed. Later on a third fine Whale was killed, and she started on her return voyage on the 11th of October with two Whales and part of a third, yielding 59 tuns of oil and 50 cwt. of bone: also 106 White Whales, 6 Walrus, 17 Seals, and 19

Bears. In addition to these the 'Eclipse' lost another very large Whale, which, after an exciting struggle, succeeded in breaking away.

The 'Diana' was the next vessel to arrive. She killed her first fish on the 29th of June, and then proceeded to Lancaster Sound in search of White Whales. Here, however, the ice was so heavy, and the weather so boisterous, that little could be done, and she narrowly escaped destruction on two occasions from ice pressure, and was glad to escape from so dangerous a locality. The next Whale she met with, and that a very large one, broke away after receiving three harpoons; and it was not till the end of October that a second fish of much smaller dimensions was secured. Her total produce was 2 Whales, 110 White Whales, 1 Walrus, and 20 Bears, yielding 47 tuns of oil and 38½ cwt. of bone. The last vessel to arrive was the 'Balæna,' with 2 Right Whales, 104 White Whales, 2 Walrus, 3 Seals, and 8 Bears, producing 46 tuns of oil and 36 cwt. of bone. The 'Alert' brought from the Cumberland Gulf station the produce of 2 Black Whales, 149 Walrus, and 3420 Seals, equal to 40 tuns of oil and 6 cwt. of bone; including which the total return for the season amounted to 14½ Black Whales, 738 White Whales, 420 Walrus, 3420 Seals, 149 Bears; equal to 260 tuns of oil and 163½ cwt. of bone.

The present price of produce is £22 10s. for oil. There are so many grades of Walrus hides that it is difficult to estimate the value of the bulk, but the price has gone down considerably. White Whale hides have realized very good prices. One sale of bone has been effected, I am informed, at the rate of £1450 per ton; but, in consequence of the falling off in the American fishery, £2000 per ton is now being asked for size-bone, with every chance of being realized. At a rough estimate the value of the produce would probably be about £24,680.

I mentioned earlier in these notes the 'Problem,' formerly of Yarmouth. Three of the trawlers, which formed part of the "Short Blue" fleet of Messrs. Hewitt & Co., of that port, and which has now been dispersed, were purchased for service in the Arctic; they were sailing vessels, averaging about 136 tons d. w., very handy, good sea-boats, and splendid sailers; but the venture has been most unfortunate. Of the three, the 'Problem,' which was to have met the 'Active' at Southampton Island,* foundered in the Atlantic; but happily the crew were rescued. The 'Forget-me-Not,' a stout little craft of 86 tons, fitted out for a private trading expedition to Frobisher Bay, has, sad to say, never been heard of since she left Southampton, where she went to take in her bonded stores. The 'Queen Bess,' after many disappointments and delays, and in spite of gales and heavy seas, reached her destination in safety, and went into winter quarters in Cumberland Gulf in charge of two of her crew, Capt. Young and the other members of the expedition returning to Dundee on board the 'Active.' These small vessels are useful at the stations, to enable the men to extend their cruises much farther than they could do in ordinary whale-boats, as well as to carry cargo from place to place.

I have no exact information as to the catch of Seals by the Norwegian vessels in the Greenland Seas, but Mr. Kinnes tells me that it was very small, and that the Bottle-nose fishery was considerably less than in the previous season.

The 'Laura,' which left Tromsö in July last for East Greenland, principally to catch Musk Oxen, reports that in this respect her voyage was a failure Happily for the preservation of these interesting animals, the ice seems to be again forming a barrier off the shore; but, in addition to the disgraceful destruction of these animals in recent years by the vessels which have been able to land there, Dr. Nathrost states† that already a modification of the fauna seems to have resulted by the arrival upon the scene of the Arctic Wolf, the migration of which he traces round the north and east of Greenland to Scoresby's Sound, where he is of opinion it made its appearance subsequent to 1892. The effect of this arrival is most apparent in the diminution in the numbers of the Reindeer, and, in a less degree, of the Musk Ox, which also Dr. Nathrost regards as a comparatively recent arrival on the east coast.

I have, as on former occasions, to express my thanks to Mr. Robert Kinnes, of Dundee, and to Mr. Michael Thorburn, of St. John's, Newfoundland, for their kind assistance.

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* It is quite possible that the mineral wealth of that island may prove a greater source of profit than even the fishery.

† 'La Géographie,' quoted in Geogr. Journ. 1901, p. 310.

SOME ACCOUNT OF THE GROUND HORNBILL, OR BROM-VOGEL (*BUCORAX CAFER*).

By W. L. Sclater, M.A., F.Z.S.

This interesting bird belongs to a genus confined to Africa, and containing only two species—one found in West and North-east Africa, distinguished by possessing a conspicuous and abruptly truncate casque on the bill at the base; the other, our present bird, which has no casque, as can be well seen by the figure here given.

The Brom-vogel is found in the eastern half of Cape Colony, especially in the partially wooded and thorn country below the mountain ranges in Natal, in the low country of the Transvaal and Rhodesia, and along the Zambesi Valley as far as Northern Damaraland and Angola, and northwards throughout Nyasaland and German East Africa. It is generally known as the "Turkey Buzzard," or "Wild Turkey," among the English colonists; the "Brom-vogel" among the Dutch; and the "Intsingizi" among the Kafirs and Zulus.

Its appearance is sufficiently remarkable. Its plumage is black throughout, except the primary feathers of the wings, which are white, but which are not seen, as a rule, when the bird is at rest or walking. The naked skin round the eyes and the wattle on the throat are a vermilion-red, and this no doubt has gained for it its familiar name of "Wild Turkey."

These curious birds move about the country in small troops of from six to eight individuals; they feed entirely on the ground, and are more generally seen in the open, though sometimes to be found in the bush. Unlike other Hornbills, they walk, and do not hop, and, when pressed at all, can run at a very good pace. Occasionally, when flushed, they take to flight, but seldom for farther than half a mile or so, when they generally take refuge in cover, sometimes perching on the branch of a tree. At night also they roost in trees. A favourite resort is a patch of burnt ground; there, with their long beaks, they turn up the sods in search of insects or grubs. Having found a dainty morsel, they take it between the tips of their mandibles, and toss it up in the air, catching it again, and swallowing it immediately. They also kill and eat Snakes, Frogs, Lizards, Tortoises, Rats, and Mice. I have not seen them kill a snake in the dramatic fashion described by Mr. Ayres, but at all times, when they have secured a choice morsel, they will stretch out their wings, jump up in the air, and give vent to their "bromming" sound. Mr. Ayres' oft-quoted account is as follows:—"On discovering a snake, three or four of the birds will advance sideways towards it, with their wings stretched out, and, with their quills, flap at and irritate the snake till he seizes them by their wing-feathers, when they immediately all close round, and give him violent pecks with their long and sharp bills, quickly withdrawing again when the snake leaves its hold. This they repeat till the snake is dead. If the reptile advances on them, they place both wings in front of them, completely covering their heads and most vulnerable parts." When the snake is dead they proceed to bite it between their two mandibles throughout its whole length, probably dislocating the snake's backbone. It is then swallowed head first, and, if the snake is a large one, the bird will go about with half of it trailing out from between its jaws. Tortoises, too, are much relished. In this case all the flesh, including the head and limbs, are neatly picked away from the unhappy reptile, leaving the shell clean and entire without damage.

The call is a kind of "boom boom," constantly repeated until it becomes quite wearisome. Mr. Ayres states that it can be heard at a great distance, under favourable circumstances as far as two miles. My experience—which, however, is confined to a bird in captivity—does not quite confirm this; but the sound, though by no means loud, has a remarkable penetrating power. The call of the female is similar, but is pitched a tone above that of the male, and is usually heard in answer to him. When "booming" the red pouch under the throat is generally, though not invariably, distended with air; this action can be performed at will. Mr. Layard lays great stress on the evil stench emitted by this bird, but I have not found this at all noticeable in the case of the individual observed by myself.

A complete account of the nesting habits of the Brom-vogel has not, so far as I am aware, been yet given, but it doubtless builds a nest on the flat crown of a tree where the trunk has decayed away, or else in a hole in a tree. Dr. Stark visited a nest at Boschfontein, near Balgowan, in Natal; it was in a hole some forty feet up in the trunk of a large tree growing in a small piece of thick bush. The birds were stated to nest annually in the same place, and Mr. Hutchinson, who showed him the nest, believed that several females laid in the same hole, as more than one pair of birds visited the young ones. The Brothers Woodward also found a nest built of sticks in a large tree standing by itself on the high flat lands over the Ifafa River, in Natal; in it were two young birds, one much larger than the other.

An egg, now in the South African Museum, taken by Colonel Bowker, at Old Morley, a mission station in Tembuland, is a somewhat elongated oval, tapering to a point; the shell is rather rough and thick; the colour was originally white, but is stained and dirty. The egg measures 2·95 × 1·80 in.

Almost everywhere the natives of South Africa attach magical properties to this bird, chiefly connected with the production of rain. The Kafirs of the eastern portion of the Colony, during times of severe drought, will kill one by order of the "rain doctor." A stone is then attached to its neck, and it is flung into a "vlei," or sometimes into a river. The idea is that the bird, having an offensive smell, will make the water sick, and that, in order to remedy this state of things, rain will fall in great quantities, which will flush out the "vlei" or river. The Ovampos of North Damaraland also have a superstition. When Mr. Andersson asked one of their chiefs to obtain the eggs of this bird for him, he replied that it could not be done, as they were soft to the touch, and would fall to pieces on the least handling.

In captivity this bird makes a charming and delightful companion; it is very sociable, and loves to come and squat close to one to be petted. It is most useful in the garden, as it spends a great deal of its time searching for caterpillars, snails, worms, and grubs of all kinds; should, however, any young chickens or ducks be about, it is well to keep the bird under restraint, as these are delicacies which even the best regulated "Brom" cannot resist.

When resting, the whole length of the tarsus is applied to the ground, and the head is almost withdrawn between the capacious wings, so that only the beak protrudes. It is always hungry, and will eat almost anything from bread and butter to the entrails of fish and poultry. Anything thrown to it is caught in the air with great dexterity between the tips of the bill, and is then tossed up and swallowed; but, when a specially dainty morsel is offered, it will bring it in its beak, with wings uplifted and wattle puffed out, and show it to its master with much "bromming."

I am indebted to the kindness of Miss A. Treggold for the accompanying photograph, which is by far the most successful of a great many attempts made by my friends to portray this very interesting pet.

THE ROSEATE TERN ON THE FARNE ISLANDS.

By the Rev. F. L. Blathwayt.

The Roseate Tern (*Sterna dougalli*) was discovered in July, 1812, on some small islands in the Firth of Clyde, by Dr. McDougall. The species was probably first observed on the Farne Islands not long after this date. Selby, in an article on the Birds of the Farne Islands ('The Zoological Journal,' vol. ii.), stated that the birds were first noticed there about the year 1811 as a new species. The date is apparently not quite correct, but it tends to show that the species was noticed on the Farne Islands very soon after it was discovered in Scotland. In the same article Selby continued :—"They now (1825) having greatly increased, form a numerous colony, which occupies a large space of ground near to that occupied by the Arctic species, and a second station upon one of the Wamseys." From this time they appear to have steadily decreased in numbers on the islands, though it is just as likely that they were driven away by the stronger species as that they were shot down and robbed by visitors.

Hewitson, in his 'British Oology,' edit. i. wrote concerning the Roseate Tern :—"Upon the Farne and Coquet Islands . . . they are very limited in number, consisting of a few pairs only, mixed and associating with the numerous flocks of Arctic and Sandwich Terns."

The species still inhabited the islands in 1856, for in the 'Proceedings' of the Berwick Naturalists' Club for that year a contributor, who had visited the islands, wrote, referring to Brownsman Island :—"The sea-fowl are here very numerous, especially . . . the Sea-swallow or Common Tern; the Sandwich Tern and the Roseate Tern are less abundant." After this the islands seem to have been nearly abandoned by this species, though it is probable that a few pairs nested on them every year. Gould, in his 'Birds of Great Britain' (1862–73), stated that he thought a few pairs still bred on the Farnes, and that eggs had been obtained there within the last five years.

In the year 1880 several pairs arrived in May, and they would probably have again established a colony had not many of them been most unfortunately shot. For the next seven years they were very scarce, but had evidently not quite deserted the islands, as in most of the numerous articles in natural history periodicals, describing visits to the islands during these years, the writers state that they have either seen one or two specimens, or have heard from the fishermen that a pair or two might always be noticed during the nesting season. The favourite islands seem to have been the Wideopens and the Knoxes.

In 1888 an association was formed for the purpose of protecting the sea-birds and their eggs on the Farne Islands, and during the breeding season watchers were placed on some of the islands to prevent visitors from molesting the birds. Reports were also issued showing the increase or decrease of the various species, and so from this time it is comparatively easy to trace the history of the Roseate Terns. In spite, however, of the efficient protection, these birds, unlike the other sea-fowl, did not increase in numbers. In nearly every report of the Society for the next ten years it is stated that two pairs only were seen on the islands, and surprise was expressed that their numbers did not increase. In 1898 it was hoped that this happy result might be attained, for five or six pairs of birds appeared in the spring of that year. In the next year, however, only two pairs were reported, and in 1900 it was thought that only one pair inhabited the islands.

When the large increase of the Eider Duck and Sandwich Tern upon the islands during late years is considered, it is somewhat disappointing to find that the Roseate Tern is only just able to hold its own. The latter, however, does not appear to be a very sociable species, and is liable to be persecuted by its larger congeners;* and among the thousands of sea-fowl which haunt the Farnes there can scarcely be many quiet spots where the Roseate Terns could establish a colony without coming into contact with other birds.

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* I state this on the authority of a remark in Mr. Howard Saunders's 'Manual of British Birds,' edit. ii. p. 645. For an opposite opinion, however, of the habits of this species, *cf.* 'The Zoologist,' 1899, p. 83.—F. L. B.

STATISTICS RELATING TO BRITISH BIRDS.

By the Rev. A. R. Horwood.

When we are told that the number of birds on the British list amounts to 415 species, most of us are at first inclined to treat this statement *cum grano salis*, as though it were a fabrication. On further consideration, however, we shall see that after all this is quite possible—that is to say, if we assume that the 415 birds are not all with us at the same time.

Allowing, then, that there are two well-defined seasons in the year—summer and winter—and also that there are two primary classes of birds on the list—resident and migratory—we see our difficulties somewhat disappear. Observing further that the latter of these two classes may be subdivided into two further classes—summer and winter migrants—we then see that it is comparatively easy to account for the apparently large number of so-called British Birds. This last phrase is used advisedly, for it must be patent to all that some of our British Birds have very little title to the name.

And thus we find there is a fourth class, beside the resident, the summer, and winter migrants, namely, the accidental or occasional straggler to our islands. Owing to many causes—such as migration, gales, and probably, to a greater extent than is generally imagined, to the escape of rare captive birds—our list of accidental visitors is a long one.

To this last class might be added a fifth—the extinct class; but as only one species that has lived within the memory of man in England has so disappeared, we may, I think, omit this class; for it only includes the now world-famous Great Auk, which became extinct about two hundred years ago.

Having reduced our list of birds to four—or, if preferred, five—great classes as regards occurrence, and using the same terms for their degree of frequency, we may, without going into too close details, examine the matter more carefully with respect to families and genera.

In our examination we will, for sake of uniformity, invariably follow the order of classification and nomenclature of Seebohm.*

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* 'Coloured Figures of the Eggs of British Birds.'

We give below a classified table to illustrate our meaning more clearly :—

Family.	Name.	Total No. of Species.	Species Resident.	Species, Regular Summer Migrants.	Spring and Autumn (Winter) Migrants, Regular.	Occasional and Accidental Visitors.	Extinct.	Remarks.
1	Falconidæ (Vultures, Eagles, Falcons, Hawks)	31	11	3	—	17	—	
2	Strigidæ (Owls)	11	4	—	—	6	—	1 introduced.
3	Anatidæ (Swans, Geese, Ducks)	44	14	—	14	16	—	
4	Phænicopteridæ (Flamingoes)	1	—	—	—	1	—	
5	Ardeidæ (Herons, Storks)	14	1	—	—	13	—	2 used to be resident.
6	Pelecanidæ (Pelicans)	4	3	—	—	1	—	
7	Procellariidæ (Petrels)	11	4	—	—	7	—	
	Colymbidæ (Divers)	4	3	—	—	1	—	
9	Podicipitidæ (Grebes)	5	2	—	3	—	—	
10	Rallidæ (Rails)	7	3	3	1	—	—	
11	Otididæ (Bustards)	4	—	1	—	3	—	1 used to be resident.
12	Alcidæ (Auks)	7	4	—	2	—	1	
13	Laridæ (Gulls, Skuas, Terns)	32	11	1	2	18	—	1 used to breed.
14	Charadriidæ (Plovers)	56	12	4	17	23	—	
15	Gruidæ (Cranes)	3	—	—	—	3	—	1 used to breed.
16	Columbidæ (Pigeons)	6	3	1	—	2	—	
17	Pteroclidæ (Sand-Grouse)	1	—	—	—	1	—	
18	Cypselidæ (Swifts)	3	—	1	—	2	—	
19	Caprimulgidæ (Nightjars)	3	—	1	—	2	—	
20	Meropidæ (Bee-eaters)	2	—	—	—	2	—	
21	Coraciidæ (Rollers)	3	—	—	—	3	—	
22	Upupidæ (Hoopoes)	1	—	1	—	—	—	
23	Alcedinidæ (Kingfishers)	2	1	—	—	1	—	
24	Picidæ (Woodpeckers)	7	3	1	—	3	—	
25	Cuculidæ (Cuckoos)	4	—	1	—	3	—	
26	Passeridæ (Singing Birds)	140	50	50	—	40	—	
27	Tetraonidæ (Grouse)	4	4	—	—	—	—	
28	Phasianidæ (Pheasants, Partridges)	4	4	—	—	—	—	
29	Turnicidæ (Hemipodes)	1	—	—	—	1	—	
	Total.	415	137	68	89	169	1	1

Taking the families in the table first, we see that there are twenty-nine families, with an aggregate of 415 species. For a small area like the British Islands, this is a very large percentage, at first sight, of the total known species in the world, which number about 12,500.

Looking now at the total number of species in each family, we see that the *Passeridæ* hold the first rank, numbering 140, or one-third of the whole number. As our finest songsters are found in this family, we must look on this with great satisfaction.

The next in order of number are the *Charadriidæ* (56), then come the *Anatidæ* (44), followed by the Gulls and Terns, or *Laridæ* (32), lastly, the Vultures and Eagles (31).

That the largest number of species includes the smallest birds, and that the largest birds are in the minority, is only natural, considering the small area and populous state of the country. Here it may be added that the largest British bird is the Mute Swan, measuring 5 ft.; and the smallest bird is the Golden-crested Wren, measuring 3½ in. from tail to beak.

Of resident species, we can now boast 137 species. Several species—such as the Kite, Bittern, Bustard, Crane, and others—used to be resident, whereas they are now only accidental visitors. Of these only five families run into double figures, the *Passeridæ* being again predominant; whilst next in order are the *Anatidæ;* then come the *Charadriidæ*, the *Laridæ*, and then the *Falconidæ*.

The total number of resident birds, it will thus be seen, is about one-third of the total number on the list.

Taking next in consideration the summer migrants, which come to us in April and leave us at the latest in October, we find the number that visit us is sixty-eight. Of these fifty are *Passeridæ*, and none of the rest run into double figures; whilst many of these latter only visit us occasionally, and many of the *Passeridæ* are resident in certain localities.

This makes our total breeding birds to number 205. Really only about 187 can be said to breed with us regularly, and some of these only locally. This number, it will be noticed, hardly amounts to half the total number.

Owing to the fact that many of our winter migrants only frequent out-of-the-way spots, we can only record thirty-nine regular species. These belong mostly to the *Anatidæ* and *Charadriidæ*.

Next in order is the fourth class—the accidental and occasional visitors. These amount to 169, but owing to the difficulties of observation many of them may undoubtedly be classed as regular spring, autumn, or winter migrants.

In the same way the numbers of the other classes must be modified according to locality, period, and observation.

Of the fifth class, only one species—the Great Auk—is exemplary. One species—the Little Owl—may also be classed as a *lately introduced* bird, like the Red-legged Partridge of an earlier date.

Thus, then, we see how it is possible for the birds on the British list to amount to 415 species, since considerably over one-third are accidental visitors, and barely half of them remain to breed with us. After all, when we consider the fact in all its bearings, it is not so very surprising if we look at it from a world-wide point of view. Our islands are situated in the temperate regions, where birds that live in the warmer regions migrate to breed. We get, then, birds from the semi-tropical regions, and birds on their way to and from the far north from our own region. In a similar way we are situated only a few miles, in the south, from the Continent. This in itself explains why our own avifauna is largely supplemented in the summer by visitors from all parts. Indeed, when we come to think of it, we must wonder why many species abundant on the Continent are not met with at all in our own country. We find birds, such as the Stork, breeding in Holland, which from its nature might just as well breed in England.

Lastly, it is not surprising that we receive visits from American species, when we consider the long distances travelled by our summer migrants, and the fact that it is only a five days' trip in the liners of the Atlantic to the New World. How comparatively short a distance must it seem, then, to such an untiring creature on the wing as the bird!

NOTES ON BIRDS MADE DURING THREE SHORT VISITS TO THE BEACH AT DUNGENESS.

By Thomas Hepburn.

These observations were made on May 10th–14th, June 3rd–4th, and July 16th–21st (1900).

Mistle-Thrush (*Turdus viscivorus*).—May 10th. Found a nest in one of the clumps of elder and holly bushes, which are a feature of this stretch of beach. The nest was in the fork of an elder-bush not more than three feet above the ground. The outside of the nest was made almost entirely of sheep's wool, with a few sticks entangled in it, and was neatly lined with fine grass. It contained four young birds about a week old. July 16th–21st. Noticed considerable numbers of these birds on the grass-lands and meadows which join the beach. They seemed to be mostly young birds.

Song-Thrush (*T. musicus*), Blackbird (*T. merula*). — These birds were also nesting in the patches of bush on the beach.

Wheatear (*Saxicola œnanthe*). — May 10th–14th. Nesting everywhere. Found two nests in crevices of the military earthworks, one in an empty shell-case, and another in an empty tin can. The eggs in one of the nests were fresh, in the others hard sat. June 3rd–4th. Found a nest with three fresh eggs in a crack in a bank of earth. July 16th–21st. Old and young birds all over the beach and adjacent meadows.

Reed-Warbler (*Acrocephalus streperus*). — July 16th–21st. Found three nests in the reeds fringing a pool of water on the marsh-land; one containing three perfectly fresh eggs, another with three young birds and an addled egg, and a third from which the birds had evidently just flown. The birds were singing all round in the reed-bed.

Sedge-Warbler (*A. phragmitis*). — Common everywhere amongst the growth or the edges of pools and dykes.

Pied Wagtail (*Motacilla lugubris*).—Common near the fishermen's or coastguards' cottages and farm-buildings. Rather a favourite nesting-place for them was amongst the stacks of fish-boxes near the coast.

Yellow Wagtail (*M. raii*).—A common bird on the marsh-land.

May 10th. Found a nest in an empty iron shell-case with a full clutch of fresh eggs in it. July 16th–21st. Plenty of these birds still about.

Meadow-Pipit (*Anthus pratensis*).—About the commonest bird on the beach and surrounding land, laying wherever there is a "tot" of grass big enough for it to make its nest in. May 10th–14th. Found nests with eggs in all stages of incubation, and with young birds already fairly well-fledged.

Swallow (*Hirundo rustica*).—May 10th–14th. A good many of these birds building in the recesses of the sham forts on the artillery range. July 20th. Found a nest under the eaves of a shed on the marsh-land with five fresh eggs in it.

Greenfinch (*Ligurinus chloris*).—May 10th–14th. Nesting in numbers in the holly and furze bushes on the beach.

House-Sparrow (*Passer domesticus*).—May 10th–14th. Numbers of nests in the tops of the holly and elder bushes on the beach, at quite a considerable distance from any farm or building.

Linnet (*Linota cannabina*).—May 10th–14th. Nesting in the holly bushes on the beach. I also found a good many nests in the tussocks of coarse grass growing on some sand dunes in the direction of Rye; some of these latter nests were made right on the level of the ground.

Corn-Bunting (*Emberiza miliaria*).—A clutch of addled eggs of this species were sent on to me (Aug. 14th). I was told that they were common on the arable land of the marsh, but I did not see any myself.

Yellow Bunting (*E. citrinella*).—May 10th–14th. Common and nesting in the furze bushes.

Reed-Bunting (*E schœniclus*).—May 10th–14th. Nesting in some numbers in any places near water. Some of the nests I found at this date contained hard-sat eggs, and all of them showed signs of incubation. The nests were, as a rule, within twelve inches of the ground, in rank grass or rushes; two of them were right on the ground. The nests are rather loosely constructed of grass, with a slight lining of hair.

Starling (*Sturnus vulgaris*).—May 10th–14th. Considerable numbers feeding in the meadows; also nesting in holes in the thatch of all farm-buildings.

Rook (*Corvus frugilegus*).—May 10th–14th. There is a rookery in Lydd, and there are always numbers of these birds feeding on the marsh-land and meadows.

Sky-Lark (*Alauda arvensis*).—May 10th–14th. Nesting everywhere in great numbers, even right out on the open beach. July 20th. Found a nest with two eggs in it, and was told of one being found the previous week containing eight eggs.

Nightjar (*Caprimulgus europæus*).—May 14th. Disturbed one from under the shelter of a stack of brushwood close under the sea-wall. It flew a short distance, and then settled in the grass. When I flushed it a second time it flew away out of sight.

Common Heron (*Ardea cinerea*).—There are nearly always some of these birds feeding along the sands at low tide.

Wild Duck (*Anas boscas*).—Breeds in numbers along the dykes and sewers, and also out on the beach among the stunted sloe and broom bushes. July 16th–21st. Considerable numbers of young birds on some of the inland patches of water.

Ring-Dove (*Columba palumbus*).—Often a few Wood-Pigeons feeding out on the patches of grass-land scattered about the beach.

Stock-Dove (*C. œnas*).—Always a few of these birds about the beach feeding on the green places. May 14th. I noticed one of these birds fly up from a rabbit's burrow. Upon investigating I found its rough nest and two young birds down the burrow.

Partridge (*Perdix cinerea*).—A good many about on the beach.

Red-legged Partridge (*Caccabis rufa*). —May 13th. Found a nest of this species built on the bank of one of the big sewers which drain the marsh-land. Also saw several of the birds out on the beach.

Moor-hen (*Gallinula chloropus*).—Moor-hens' nests are very numerous in the dykes and pools of water on the marsh-land. In no cases were the eggs in any of the nests that I found covered over with leaves.

Coot (*Fulica atra*).—May 13th. Found two nests in the reeds surrounding a pool of water on the marsh; two eggs in one, and eight eggs in the other. In both instances the eggs were quite fresh.

Stone Curlew (*Œdicnemus scolopax*).—Local name, "Night-Hawk." Several pairs of these birds still breed on the beach, but they are by no means common, and all the coastguards' and fishermen's sons know that the two eggs have a marketable value. May 14th. I saw one of the birds fly up from the beach, and, on looking along the ridge from about which it flew, I found its two eggs lying on the shingle. The apology of a nest in which they lay was simply a hollow scratched out in the shingle, measuring about 7 in. in diameter and ¾ in. deep. The two eggs were laid fully two inches apart, and end to end. I was told by a fisherman that they are never laid close together. Surrounding the hollow were several pieces of broom, which had the appearance of having been put there by the bird. One egg was rather larger than the other, and the same fisherman as I have mentioned above said that they always call the larger egg a cock's egg, meaning that a male bird would be hatched out of it. The same day another pair of these eggs was offered to me for sale, and I was informed of a further pair having been found two days previously. This shows that there are several pairs breeding on the beach, and also that they must find it a difficult matter to bring their business to a satisfactory conclusion.

Dotterel (*Eudromias morinellus*).—Local name, "Land Dotterel." May 10th–14th. Saw several pairs of these birds on this visit, but saw none in June or July.

Ringed Plover (*Ægialitis hiaticula*).—Local name, "Stone Runner." May 10th–14th. This is a common bird on the beach, and nests there in considerable numbers. Owing to the close similarity in the colouring of the eggs and the shingle, and to the artful behaviour of the old birds, its eggs are far from easy to find. I was shown a nest on May 12th with four eggs in it. The nest was a neat hollow made in a patch of rather small shingle, and measured 3½ in. diameter and 1 in. deep. It was just big enough to take the four eggs, with the small ends all accurately pointed to the centre, and slightly depressed. July 16th–21st. Was told of a nest with three eggs in it having been found a week previously. The birds were just as numerous on the beach as during May. One could not walk far without one's attention being called to it by its plaintive whistle, as it flew round in wide circles. Large numbers were to be often seen feeding on the grass-land, especially towards evening.

Kentish Plover (*Æ. cantiana*).—May 10th–14th. I was introduced to this small and somewhat rare little Plover by one of my fishermen friends, who showed a very considerable knowledge of its breeding habits. He informed me that he knew of at least four pairs breeding on different parts of the beach, and that each of these pairs would, if it had the chance, lay two clutches of eggs. After watching one pair of the birds through our glasses, he said, from their behaviour, he should judge that they had not started laying yet; and he took me off to another part of the beach, where he very soon showed me a nest with three eggs in it. I found the eggs most difficult to distinguish, even when close to the nest. The hollow in the shingle in which they were laid was 3 in. in diameter and ¾ in. deep. The pebbles on the inside of the nest had a rather worn and stained appearance from the bird sitting on the eggs.

Lapwing (*Vanellus vulgaris*).—May 10th–14th. There were great numbers of these birds on the beach and adjoining marsh-land. Many of them breed right out on the shingle; in fact, they lay their eggs anywhere, either on the grass-land or the shingle. There is a considerable traffic in their eggs during the early months of the spring. In all of the nests that I found there were clutches of only three eggs, and, as they were also all hard-sat, this was the full clutch laid in these particular cases. When the nest is made on the shingle there is generally some attempt at lining it with grass, although in one case the eggs were laid right on the stones. July 16th–21st. At this date there was not a single Lapwing to be seen on the beach proper. There were, however, large numbers of them, old and young birds, on the marsh and meadow lands; but they seemed to have quite deserted the shingle.

Common Snipe (*Gallinago cœlestis*).—May 13th. I disturbed a single bird of this species by the side of a ditch. My companion told me, however, that he had never heard of a nest being found in the district.

Dunlin (*Tringa alpina*).—May 10th–14th. Small flocks of this bird are numerous in suitable places on the beach. I caught one that had at some time or other lost one of its wings. I was told that there are often maimed birds like this feeding with flocks of sound ones. This specimen was in perfect plumage and fat condition. It was feeding with a small mob of its fellows, and my attention was called to it by its not taking flight when its companions rose at my approach. July 16th–21st. I did not notice any Dunlin on this occasion.

Redshank (*Totanus calidris*).—Local name, "Red-legs." May 10th–14th. A most conspicuous bird everywhere, on account of its loud whistle and bold behaviour when anyone is near its nest. It is common both on the beach and on the marsh-land. Nests were to be found at this date with both fresh and hard-sat eggs in them. One nest I found was made right on the shingle, with only the scantiest lining of grass and lichen. June 3rd. I found a nest in a patch of grass on the beach with one fresh egg in it. The nest, however, had the appearance of being deserted. July 16th–21st. The Redshanks, like the Lapwings, had quite deserted the beach proper, nor were they numerous anywhere else. I only saw five birds on this occasion, and they were some distance inland, near a piece of water on the marsh.

Common Curlew (*Numenius arquata*).—May 10th–14th. Saw single birds, and also several flocks of this species flying inland from the sea-coast. During my two later visits I saw none of these birds.

Whimbrel (*N. phæopus*).—May 13th. Picked up a recently shot specimen of this bird by the side of a ditch inland.

Common Tern (*Sterna fluviatilis*).—Local name, "Kip."—May 10th–14th. There were plenty of these birds about the beach and sea-coast at this date, but they had not yet begun to lay. June 3rd–4th. Now nesting in considerable numbers on various parts of the beach. As a rule the birds were congregated into colonies, but I found two separate nests in quite isolated positions. In the colonies the nests were on an average fifteen or twenty yards apart. The variation in colour and in size of the eggs, even in the same nest, was very great. Their nests—merely a shallow scrape out in the shingle—were in most cases lightly lined with dry grass. In several instances I found eggs indented and cracked, due no doubt to the unevenness of the bottom of the nest causing undue weight on one portion of the egg when the bird is sitting on the nest. At this date I found eggs with the young birds beginning to form, and others quite fresh. July 16th–21st. I did not notice so many of these birds on this visit, but, as I was chiefly on the western edge of the beach, from which the birds had been driven by the artillery practice, that was probably the only reason for my not noticing so many. I was told that the majority of them were to be found to the east of Dungeness Point.

Lesser Tern (*Sterna minuta*).—Local name, "Skerrek." May 10th–14th. Common about the beach, but not yet started laying. June 3rd–4th. Found them nesting in small companies in a good many places on the beach. They seem to choose places where the shingle is small and comparatively fine, and often do not even trouble to make the usual slight scratch out, laying their eggs in a chance depression, such as a footstep. The nests in these colonies were generally rather closer together than in the case of the Common Tern—say, about eight to ten yards apart. There was no real attempt at lining any of the nests I saw, although they occasionally had an odd blade of grass in them. Several of the eggs I found were showing signs of incubation. There was not quite so much variation in the colour and size as in the eggs of the Common Tern. The complement of eggs in both species seems to be either two or three.

Black-headed Gull (*Larus ridibundus*).—Local name, "Crock." May 10th–14th. There is a fair-sized colony of these birds on some pools of water in the middle of the beach. Round the edges of these pools there is a thick growth of reeds and sedges, extending some way from the banks. Most of the nests were resting on the flattened tops of these reeds, which formed a fairly substantial support. The nests themselves were careless structures, the outer part made of dead reeds, with an occasional lining of dry grass, but quite as often without any fine lining at all. All these nests were built on the side of the rushes farthest from the land, and were on this account difficult to get at, as the water at the edge is covered by a treacherous layer of dead vegetation. This is not safe to trust one's weight on, for if breaking through one is immediately in very deep water. Masses of this dead vegetation had broken away from the edges, and were floating about the surfaces of the water, and on nearly all of them one could, with the glasses, distinguish eggs lying right on the surface of the *débris*, without any attempt at nests. I only saw two clutches with three eggs, the rest of the nests I could see having only one egg in them. July 16th–21st. I only saw old birds on the part of the beach that I visited.

Herring-Gull (*L. argentatus*), **Lesser Black-backed Gull** (*L. fuscus*), **Great Black-backed Gull** (*L. marinus*).—There were numbers of these three species on the beach in both mature and immature plumage. They seemed to make a special haunt of the pools where the Black-headed Gulls breed.

Guillemot (*Uria troile*).—I picked up a dried specimen of this bird amongst the *débris* on the beach.

Little Grebe (*Podicipes fluviatilis*).—May 10th–14th. Breeding in considerable numbers in the ditches and pieces of water on the marsh-land. I found nests with fresh eggs and eggs just hatching out on May 13th.

NOTES AND QUERIES.

MAMMALIA.

The Food of the Water-Vole.—There has been, I believe, much discussion as to whether the Water-Vole (*Arvicola amphibius*) will eat animal food or not. Most writers on natural history agree to their being entirely vegetable feeders. The Rev. J. G. Wood, among others, says:—"I never yet saw the true snub-nosed, short-eared, yellow-toothed Vole engaged in eating animal food, although the Brown Rat may often be detected in such an act." I myself have twice caught the Water-Vole in the ordinary steel rat-trap baited with meat, which I think proves that the Water-Vole will at times partake of animal food if it can get it.—Gordon Dalgliesh (Inglefield, Milford, near Godalming, Surrey).

AVES.

Breeding of the Lesser Redpoll (Linota rufescens) in Somerset.—It is only during recent years that the Lesser Redpoll has been recorded as a species which breeds in Somerset. Of late, however, several nests of this bird have been found, and it is probable that at the present time the species breeds regularly in many parts of the county. I am not aware that any nest has been recorded as found in the county before the year 1888, but in that year the Rev. T. W. Allen informs me that he found a nest on the Blackdown Hills, near Wellington, and that he knew that two more nests had been found more recently in the same district. This species has also bred in the neighbourhood of Frome, for the Rev. M. A. Mathew has recorded (Zool. 1897, p. 423) that nests and eggs have been taken, and a brood of young birds seen, near Buckland Dinham Vicarage, between the years 1888 and 1897. Mr. C. F. Henderson, of Flax Bourton, near Bristol, has informed me in writing that the Lesser Redpoll has nested frequently in his neighbourhood since the year 1892. In one season he knew of four nests within a small area. In the pages of 'The Zoologist' for 1894 are several notices of the breeding of the Lesser Redpoll in Somerset (*vide* pp. 228, 265, 304, 305). From these records it appears that observers noticed that the species nested in several localities near Bath in 1893, and near Clifton and Bridgwater in 1894. During the last four years I have occasionally seen Lesser Redpolls at the end of April in the woods on Worlebury Camp, Weston-super-Mare, some of the birds displaying the rosy breeding plumage on their breasts. I cannot be sure that the birds have ever nested in these woods, though I think it very probable that they may occasionally have done so. This species also nests in the interesting country near Ashcott and Shapwick, known as the turf or peat moors. In this district the birds find just what is suited to their requirements, as the beds of alder and sallow afford them both food in the winter and nesting accommodation in the summer. Little flocks are seen in this district during the winter months, feeding on the seeds of the alder, and I am told by competent authorities that a good many nests have been discovered in the summer. A working man of the district, with whom I was conversing on the subject, seemed to know the species well, and described to me the little nests which he had often found, beautifully lined with vegetable down. On June 12th of last year I visited the turf-moors, and saw several Redpolls flying about among the alder plantations near Ashcott Station, and uttering their harsh and wheezing notes. Several pairs appeared to be breeding, but I could only discover one nest, which was placed near the top of a sallow-bush, and contained a single egg. It is, I think, fair to conclude from these notes that the Lesser Redpoll is at the present time a fairly regular resident in Somerset, and possibly far more so than is generally supposed. The above records prove that the species has bred in the northern parts of the county, and also on the central levels, and near the south-western boundary. It would be interesting if other observers could still increase our knowledge of the breeding range of the bird in the county. As the records of its breeding in the county do not appear to extend back more than about fourteen years, it seems probable that it has only lately established itself as a nesting species, though how far this supposition is due to increased observation it is impossible to say.—F. L. BLATHWAYT (Lincoln).

Green Woodpecker boring in Winter.—In 'The Zoologist' for 1897 (p. 573), I recorded an instance of the Green Woodpecker (*Gecinus viridis*) boring in November. A similar instance has just occurred here, a beech tree having been recently bored by the same species, possibly the same bird. The enclosed fresh chips, which I picked up under the tree to-day (Jan. 14th) show plainly that the Woodpecker is at work on an ordinary nesting-hole. — JULIAN G. TUCK (Tostock Rectory, Bury St. Edmunds, Suffolk).

[Fresh chips duly received.—ED.]

Curious Accident to a Kingfisher.—The following ornithological incident may be worthy of record in these pages:—In a letter from Mr. Ernest White, of Wear House, in this city, he states:—"I was walking yesterday (Jan. 5th) by the river near Bow Corner, when I observed a Kingfisher (*Alcedo ispida*) fastened to a tree about twelve feet from the ground. By carefully bending the branch downwards I was able to release it. It was held by the gummy secretion of a chestnut-bud, which adhered very tightly to the breast-feathers. It had sustained no injury whatever. Having satisfied myself on this point, I placed the bird on the back of my hand, where it sat for three or four minutes before flying away." I have never before heard of such an instance of nature using birdlime to entrap a Kingfisher. I may add that there had been several bright sunny days, and that I found the chesnut-buds exuding their gum freely.—H. B. Tristram (Durham).

Tengmalm's Owl in Northamptonshire.—A good example of Tengmalm's Owl (*Nyctala tengmalmi*) was shot on Jan. 8th at Apthorpe, in Northamptonshire, and, being sent by Sir J. Crossley to Norwich for preservation, I had an opportunity of examining it in the flesh at Mr. Roberts's shop, where we endeavoured to see the asymmetry of the ears, which, though strongly marked in this species, is very difficult to detect in the exterior "conch." Tengmalm's Owl is a species not included in Lord Lilford's 'Birds of Northamptonshire,' to which county, I presume, it is an addition. — J. H. Gurney (Keswick, Norwich).

Shoveler in Herts.—Your correspondent, in stating that *Spatula clypeata* had not previously been recorded from Herts (*ante*, p. 27), has overlooked some earlier chronicles. The late Mr. J. E. Littleboy, in his 'Notes on Birds observed in Hertfordshire,' records one killed at Wheathampstead in August, 1882; and the report for 1887 states that there were from three to five Shovelers' nests every year at Tring Reservoirs. Since Mr. Littleboy's death in 1888, I have not received the Hertfordshire ornithological reports. — O. V. Aplin (Bloxham, Oxon).

Red Grouse in Surrey.—In reply to Mr. le Marchant's enquiry upon the subject of attempted naturalization of this species in Surrey (*ante*, p. 27), I may perhaps inform him that, although the actual date of the Duke of Gloucester's essay was 1829, I do not know the year in which Colonel Challoner's introduction took place; nor have I been able to find out any particulars beyond those appearing in the 'Field' in 1871. The discussion which took place at that date was started by a gentleman signing himself "33," who asked whether Bagshot Heath ever held naturally occurring or imported Red Grouse ('Field,' Jan. 14th, 1871, p. 27). The query was answered by two letters, the first from a contributor signing himself "C. W. D." He says:—"I can tell your correspondent '33' that the attempt has been more than once unsuccessfully made to naturalize the red grouse both on the Surrey Hills and on Dartmoor. I cannot recollect many of the particulars, but within my memory a gentleman (I think, Col. Challoner) obtained a number of grouse, and turned them out on Chobham Common. They bred, and many strayed, and were killed on neighbouring heaths, but they disappeared after two or three years." . . . The rest of this gentleman's letter is immaterial. This note appeared in the 'Field,' Jan. 21st, 1871, p. 38. Another correspondent on the same date, signing himself "Effessea," says:—"An old tenant of mine, the late Thos. Marter, of Durnford, Chertsey, told me that either the Duke of York, when at Oatlands, or the Duke of Gloucester at Bagshot Park, many years ago turned out the red grouse on Bagshot, Chobham, and Frimley Heaths, but they did no good." . . . The rest of the letter is immaterial. Both these accounts are somewhat vague, though I have always thought that in mentioning Chobham as a place where a trial was made the second writer was intending to refer to what was (unknown to him) Col. Challoner's attempt. The Red Grouse was also probably introduced in Surrey prior even to the Duke of Gloucester's attempt in 1829, as Graves, in his 'British Ornithology' (1811–1821) mentions that it "has been turned out in several parts of Surrey, Sussex, and Hants." I have never, however, been able to discover any particulars of such earlier trials, if there really were any. The classic authors refer only to the Duke's essay. A writer in the 'Field,' July 28th, 1860, p. 84, signing himself "Argus," states, in the course of a note on the Game Preservation Acts:—"I have proof of the Bustard and Quail, formerly plentiful on the Surrey and Sussex hills, but none there now; nor would there be a partridge but for the Game Act. Of the grouse turned out by Mr. Bray, of Shere, many were shot by others as *raræ aves in terrâ*; and so supposed without the Game Act." Although I tried, I could never find any evidence that Mr. Bray turned out the Red Grouse, nor for that matter a single definite instance of the occurrence of the Bustard in Surrey; and the context of the letter being vague, and partly, at any rate, quite inaccurate, I did not consider it advisable to make any reference to this letter in my remarks on this species in my 'Birds of Surrey.' Beyond these letters, and the remarks concerning "Red game" made by Nathaniel Salmon in his 'Antiquities of Surrey,' which I have always regarded as being meant to indicate the Black Grouse, I am not aware of any further notes published upon the importation of this species into Surrey. It may well be that if the actual date of this Col. Challoner's attempt could be ascertained, it may be found that it was considerably later that 1829, and, if so, Mr. le Marchant's informant may be quite correct within a few years. I have heard from another source that it is believed that Mr. Bray did introduce the species near Shere; but, as I have said before, nothing definite.—John A. Bucknill (Epsom, Surrey).

Little Bustard in Sussex.—On Dec. 16th, 1901, a specimen of *Otis tetrax* was shot near Burpham, Sussex, and was sent to Mr. W. B. Ellis, taxidermist, Arundel. It was a female, and weighed 26 oz. W. Percival Westell (St. Albans).

[The above is a light weight. The weight of one shot on Drayton Moor, Somersetshire, in 1894, was 2 lb. 2 oz. (*cf.* Harting's 'Handbook of British Birds,' p. 165).—Ed.]

On the Feigning of Injury by the Lapwing (Vanellus vulgaris) to attract attention from its Young.—Allow me to demur to the interpretation placed on some words of mine, culled from 'The Zoologist' (1897, p. 473), by Mr. Bernard B. Riviere (*ante*, p. 29). If he will turn to pages 27 and 28 of 'The Zoologist' for 1898, the reason for my repudiation of the views ascribed to me will be at once apparent. Meanwhile, I may repeat, for the benefit of those not possessing the back volume in question, that I should never dream of allying myself with such dogmatic reasoning as would deny the possibility and exceptions to almost any rule. Mr. Riviere not only wrongly infers that by the word "devices" I must mean the simulation of injury, but concludes that "we have here two experienced observers expressing their disbelief in the fact that the Lapwing ever employs the ruse of 'shamming wounded' on behalf of its offspring." Nothing of the kind, so far as I personally am concerned; Mr. Selous can answer for himself. Moreover, I would invite attention to two words in the sentence I have quoted; I refer to the words "ever" and "offspring." With regard to the first, who would be so rash, after a prolonged and profound study of Nature, and her frequently inconsistent and contradictory ways, as to deal in uncompromising negatives where she is concerned. I should not. As for the second, I make a vast distinction between eggs in the nest and young birds out of it when dealing with the behaviour of the parent birds. I used the word "nests," implying that eggs in process of incubation were in my mind; your correspondent, as may be seen, writes of the "offspring"

—quite a different story. I have no wish to juggle with words, but when originally employing the term "devices," the aerial evolutions and weird, fantastic wheelings of the cock bird—then popularly supposed to be the hen—alone were in my mind. The facts, broadly stated, according to my experience, are these:—While the female is sitting the male keeps guard, and on the approach of an intruder tries to mislead and confuse him—three or four other cocks will occasionally assist—by aerial devices, his mate, meantime, running quickly and silently away from the nest for a considerable distance. When the eggs are hatched, however, very different tactics prevail; both parents are then assiduous in their clamorous endeavours to draw intruders away from where their young are concealed. I may add that some years ago I took the trouble to look up and tabulate what upwards of thirty authors of books on birds had to say on the point at issue, and I found that Selby alone of the entire number had got the the true facts correctly. It is unquestionably the rule for the female to run from the nest when danger threatens, but I have known a sitting bird, come upon very suddenly from over a hill and taken quite unawares, to fly direct from her nest; and I have studied the point sufficiently to learn that the female will also fly from the nest at times if she has already been somewhat disturbed, and I have always regarded such action as meaning—Oh! the whereabouts of my nest is known; why should I any longer have recourse to a useless artifice to conceal it?—H. S. Davenport (Melton Mowbray).

Pairing Manœuvres of Birds.—With reference to Mr. Selous' recent remarks on the similarity of the pairing manœuvres of both sexes in certain birds, I should like to draw attention to the Satin Bower-bird (*Ptilorhynchus violaceus*) as a good example of this. I often observed these birds, during my stay in England last summer, at the London Zoological Gardens, and repeatedly noticed that the female uttered the same absurd fizzling song as the male, and used the same gestures. I especially noticed that both sexes frequently jerked up the closed wings, thus, in the case of the hen, showing their yellow lining. Now, if the male of this bird were conspicuously coloured on the under side of the wings, and used this gesture as he does at present, it would be put down as designed for a sexual attraction; and as the female birds are supposed, with much reason, to frequently exhibit a former stage in the colouration of the male, it may be suggested that in this case the colouration of the wings and the trick of lifting them was originally masculine; and that the male, having acquired his purple plumage, has still retained it, just as the dull-coloured grey forms of the tame fowl still show off in a manner better suited to the richly-hued Junglefowl. That colouration and habits may be transferred from the male to the female we know; many hen birds assume male plumage while still far from being senile and barren; and in the English game-fowl and Indian Aseel the intense pugnacity of the male has been transferred to hens and chicks as well, although undesired. On the other hand, there is very good reason for supposing that the display-poses of birds are simply the method by which the particular species or natural group exhibits any excitement, sexual or otherwise, as the case may be. Take, for instance, that very excitable bird, the Turkey. The cock's showing-off position is that assumed by both sexes when fighting, the wings being dropped, and the tail raised and spread. So with the Common Fowl; two cocks or hens meditating a fight assume the sideway-slanting attitude which is so characteristic of the courting chanticleer, and so well adapted to display the rich hues of back and wing found in the original black-breasted red—the Jungle-fowl colour. As showing the thoroughly instinctive character of the performance, I may mention that the Grey and Green Jungle-fowls (*Gallus sonnerati* and *G. varius*) show off in practically the same position as the tame fowl. So also do the ruffed Pheasants of the genus *Chrysolophus*—the Golden and Amherst—this genus being undoubtedly very near the Junglefowl. The hens of these Pheasants assume the slanting position when angry. In the Peacock many people must have observed that the young male will show off in due form before he has any train. I have heard that the hen assumes the show position when excited, and I recently saw a mere chick only about the size of a fowl take up this posture when alarmed by a cat. Among waterfowl the similarity of the gestures, under any excitement, of both sexes of the Muscovy Duck is very noticeable. The Swan also, whether male or female, exhibits either anger or sexual passion in the same way, in the latter case the wings being laid flat, and the plumage of the upper part of the neck puffed out. The lying out on the water as an invitation to pairing is a very marked gesture in the female Mandarin Duck (*Aex galericulata*); I have seen a mated female thus solicit her own male on several occasions, and unmated birds have done the same with an alien drake. In London last year I saw, in St. James's Park, a pair of the allied Summer Duck (*Aex sponsa*) swimming along, while a common Park Mallard was swimming so as to cut across their course a little way ahead. Although he obviously had no intention against her, the female *A. sponsa* laid herself out on the water in the pairing posture of the female Mandarin Duck, pointing with her head to the Mallard. Immediately her mate rushed and drove the Mallard away, which was what, I presume, she had wanted him to do; and had made use of a stereotyped gesture of supplication for the purpose.—F. Finn (Indian Museum, Calcutta).

Correction.—In my note on the Yellow-billed Cuckoo (*ante*, p. 26), I regret to find I made a mistake in stating that a specimen was obtained on the shores of the Menai Straits in October, 1900. The date should have been Nov. 10th, 1899.—Robert H. Read (Bedford Park, London, W.).

PISCES.

Notes from Great Yarmouth.—Some most interesting examples of piscine aberrancies have lately passed through my hands, which are probably worth recording. The first—a freshly-caught hybrid Turbot-Brill—was purchased on the fish-wharf for me, on Jan. 13th, by Mr. R. Beazor, a local fish salesman, to whom I am indebted for securing me several good things. The fish weighed about five pounds. Its peculiarities may be described as follows:—The head and general shape resembled the Turbot; the upper skin decidedly the Brill in markings, touch, and colour, and without the spiny protuberances so noticeable in the Turbot. The tail was that of the Brill, and the under surface was, to my mind, more scaly than the Turbot. I sent it to Mr. Southwell, from whom it passed to Mr. Lydekker, who, I believe, has placed it in the National Museum.

On Jan. 29th I inspected a strange thing in the shape of a combined roe and milt, taken from a Herring opened on Mr. Blanchflower's potting premises. The "combine" was fully adult; two-thirds of it, from the fore-end, was well-defined roe, the posterior end being distinctly milt, spliced in after the fashion of a finger inserted into a linen-peg. A continuous skin-like membrane along the upper part connected the whole.

I had recently brought to me, by a sea-angler fishing from the jetty, the backbone of a Whiting, which was most peculiarly misshapen, reminding one somewhat of a flattened corkscrew. The angler had noticed the odd undulations in the fish before cooking it, and saved me the strange vertebræ.—A. Patterson (Ibis House, Great Yarmouth).

NOTICES OF NEW BOOKS.

Lamarck, the Founder of Evolution, his Life and Work: with Translations of his Writings on Organic Evolution. By Alpheus S. Packard, M.D., LL.D. Longmans, Green & Co.

Whatever may be the general conclusion as to the claim of Lamarck being "the founder of evolution," there can be no possible doubt as to his life being the "old, old story of a man of genius who lived far in advance of his age, and who died comparatively unappreciated and neglected." The exact site of his grave "is and forever will be unknown"; his remains were not even deposited in a separate grave, and his bones are now probably in the catacombs of Paris, mingled with those of a very mixed humanity. His career comprised about twenty-five years devoted to botany, and he was in his fiftieth year when he assumed the duties of his professorship of zoology, and began his real evolutionary conceptions. This was in 1793, on the eve of the "Terror," and the dull thud of the guillotine "could almost be heard by the quiet workers in the museum." We wish our space would allow many extracts from this delightful narrative, for the old French zoologists and explorers cross the pages, and we learn much about men whose names are household words to most naturalists.

It is, however, with the views of Lamarck that Dr. Packard is most engaged; and, as an American, he appropriately defends the estimation of many of his scientific countrymen, who hold the French philosopher as even greater than Darwin. We learn that it was Lamarck who proposed the word "Biology," which first appears in the preface to his 'Hydrogéologie,' published in 1802. His definition of species has the true evolutionary ring: "Species, then, have only a relative stability, and are invariable only temporarily." As we read his views, one cardinal axiom seems always prominent: "It is not the organs—that is to say, the nature and form of the parts of the body of an animal—which have given rise to its habits and its special faculties; but it is, on the contrary, its habits, its manner of life, and the circumstances in which are placed the individuals from which it originates, which have, with time, brought about the form of its body, the number and condition of its organs, finally, the faculties which it enjoys." This, to very many, will probably prove a hard saying, but it is one which must be mastered with the context of Lamarck's other views, before assent or dissent can with scientific propriety be asserted.

Lamarck was at least a natural philosopher far before his time, with the accidents of wealth, leisure, and powerful support absent from his career, which was pursued among many carping cares—an evolutionary Milton, with the last ten years of his life passed in darkness. Dr. Packard has now written *the* book which was wanted, and will for long remain the only biography of Lamarck, and the best defence of Lamarckism. We will conclude with the words of the author: "We are all of us evolutionists, though we may differ as to the nature of the efficient causes." And may we not add that Lamarck preceded Darwin, as Erasmus did Luther?

Regeneration. By Thos. Hunt Morgan, Ph.D. New York: The Macmillan Company.

We trust that this title will occasion no misconception; it has nothing to do with theology. The warning is not altogether absurd, as some years ago a certain novel entitled 'Birds of Prey' was gravely recorded in Germany among the ornithological publications of the year. Regeneration is here referred to as a biological phenomenon common to many animals, but of which the Salamander affords a sufficient example. "Salamanders also regenerate a new tail, producing even new vertebræ. If a leg is cut off it is regenerated; if all four legs are cut off, either at the same time or in succession, they are renewed. If the leg is cut off near the body, an imperfectly regenerated part is formed." Dr. Morgan also includes plants as regenerate organisms, on the contention that the principal difference "is the development of the new part near the end, rather than over the end, and, as in some cases, the new part may even appear in new tissue that covers the end, &c." The word "regeneration" has therefore in biology "come to mean, in general usage, not only the replacement of a lost part, but also the development of a new whole organism, or even a part of an organism, from a piece of an adult, or of an embryo, or of an egg."

In this book, which will be read with pleasure by all zoologists, there are two prominent features: *firstly*, a very full and complete exposition of the whole phenomena incidental to regeneration, with which few can, and probably fewer still will, cavil; and *secondly*, a distinct challenge of the doctrine of "natural selection." This last position in itself is a gain to those who hold with Darwin's original conception, as distinct from the new doctrine of some of his latest exponents. A theory only ceases to be one when the last difficulty is overcome, and, as Dr. Morgan well observes, "The custom of indulging in exaggerated and unverifiable speculation bids fair to dull our appreciation for hypotheses whose chief value lies in the possibility of their verification." As an example of our author's method in this discussion, which is throughout conducted in a fair, logical and courteous manner, we may quote the following sentences:—"All that natural selection pretends to do is to build up the complete power of regeneration by selecting the most successful results in the right direction. In the end this really goes back to the assumption that the tissue in itself has power to regenerate more completely in some individuals than in others. It is just this difference, if it could be shown to exist, that is the scientific problem."

Insect Life: Souvenirs of a Naturalist. By J.-H. FABRE. Translated from the French. Macmillan & Co., Ltd.

WE recently had the pleasure of drawing our readers' attention to a book entitled 'Bird-Watching'; this publication might with equal felicity have been called "Insect-Watching," for both volumes are the result of bionomical observation. The author, estimated by Darwin as "that inimitable observer," is widely known by his 'Souvenirs Entomologiques,' of which there are now seven series, this volume being a translation of the first.

To entomologists the work is, or should be, quite familiar, but it addresses a wider audience; to all who study bionomics it inculcates a method of painstaking observation which is almost unique. M. Fabre is an entomological Sherlock Holmes, as far as those insects are concerned which he has watched or "shadowed." He knows their whole proceedings, to some of which the terms murder and assassination are, we think, too frequently applied. Could a hymenopteron be heard in reply, it would probably retort that our slaughter of a sheep was in nowise different from their action of obtaining living provender for the sustenance of their young. When we read of the war waged by insect upon insect, we marvel more at the conclusions of some of the advanced school of mimickists, who would ascribe all colour for protection against larger but lesser foes.

M. Fabre claims to have exploded one error concerning the balls of dung so frequently seen rolled along by the Dung-beetles (*Scarabæidæ*). These globular masses were always supposed to contain an egg, but it appears they are the material for banqueting in subterraneous palaces, and that the large ball which does contain the egg is never rolled to the hole, but is constructed in it.

The book is very nicely illustrated; but we are quite sure that had its pages been submitted to Dr. Sharp, who wrote the preface, several entomological *gaucheries* would have been absent. We trust that the remaining series of the 'Souvenirs' may also soon appear in this translated and illustrated form.

A Textbook of Zoology. By G. P. Mudge, A.R.C.Sc., Lond., F.Z.S. Edward Arnold.

Another text-book of zoology in these days of rapid publication should exhibit another method in treatment, even if new facts are hardly procurable. This volume certainly exhibits a considerable difference in the treatment of its subject to many other handbooks, and Mr. Mudge has produced a book which will probably be more useful to the zoological student than to the ordinary naturalist, who only consults such writings, when considered necessary, as one refers to a dictionary or cyclopædia. Certainly this volume requires study, and without dissections are made to illustrate its teachings, much of the labour of Mr. Mudge may have been expended in vain.

Chapters xx. to xxiv. can, however, be read with pleasure and instruction by any zoologist, for such topics as Embryology, Heredity, and Variation, among others, not only appeal to the consideration, but demand the attention of every naturalist, however little he may regard the philosophical side of his subject. The chapter on Heredity is a particularly fair and concise exposition of that phenomenon, and can be appreciated alike by the followers of Eimer and the disciples of Weismann. The difficulty of finding a theory impregnable from all attack may be well understood when we examine the nature of some statements which are advanced as fundamental facts. Thus Mr. Mudge, in his tabulation of the "chief differences between the Cockroach and a Butterfly," states of the last-named that its antennæ are thickened "into a club at the tip," that the "fore wings are larger than the hind wings in both sexes," and that it "feeds, when it does so, entirely on honey which is obtained from flowers." Now these three statements are true in a general sense, but incorrect in an absolute one. In very many species of the *Hesperiidæ*, the antennæ are not clubbed; in the genus *Dismorphia* the posterior wings are larger than the anterior ones; while though it would be agreeable to believe that these beautiful creatures feed on honey alone, the fact remains that some of the most brilliant representatives are attracted by the dung of animals, offal, decomposing Elephant meat, dead Stoats and Weasels, and, as Sir H. Johnston has informed us, even, like ghouls, by the blood-soaked ground after a human combat.*

Notes and Letters on the Natural History of Norfolk, more especially on the Birds and Fishes. From the MSS. of Sir Thomas Browne, M.D.; with Notes by Thos. Southwell, F.Z.S. Jarrold & Sons.

No less an authority than John Addington Symonds has stated that the reputation of Sir Thos. Browne is founded on his *Religio Medici* and *Enquiry into Vulgar Errors*, and some of his most remarkable tracts, such as *Hydriotaphia* or *Urn Burial*; but in this volume Mr. Southwell has shown Browne to have also been an observant Norfolk naturalist. It is pleasant to read that in those days "Bistardæ or Bustards are not vnfrequent in the champain & feildie part of this country"; and in a footnote Mr. Southwell states that Browne in 1681 was on the verge of discovering the presence of the gular pouch in this bird, first demonstrated by Douglas in 1740. The Hoopoe appears to have been not an uncommon bird in Browne's days and aviculturists may be interested to learn that "Loxias or curuirostra" were known then to be "kept in cages butt not to outliue the winter." Among fishes, Browne's record of "a sword fish or Xiphias or Gladius intangled in the Herring netts at yarmouth" appears to be the only authentic record of this southern species in British waters.

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* *Cf.* 'Kilima-Njaro Expedition,' p. 176.

If the charm of this book is to be found in the somewhat quaint chronicles of Sir Thos. Browne, its value certainly attaches to the copious and trustworthy notes of Mr. Southwell, promoted and assisted in some instances by Prof. Newton. These notes might stand by themselves as a commentary to the zoology of Norfolk, and have the merit—not universally found in annotation—of being accurate in observation, and also exhibiting a knowledge of the literature, and much of the *old* literature, on the subject.

EDITORIAL GLEANINGS.

We regret to read in the 'Athenæum' that "an eminent man of science has passed away in Emil Selenka, titular Professor of Zoology and Comparative Anatomy at Munich since 1896, when he resigned his professorship at Erlangen. Prof. Selenka, who was born at Brunswick in 1842, devoted his attention chiefly to the Echinodermata and vertebrate animals. He twice undertook a journey to the Sunda Islands and Java to study the anthropoid Apes. His most important works are 'Zoologische Studien' and 'Studien über die Entwicklungsgeschichte der Tiere.'"

We have received from Oxford the 'Thirteenth Annual Report of the Delegates of the University Musenm (for 1900).' Anthropology is well represented at Oxford. The late Prof. Rolleston upheld the science in his day, and Dr. E. B. Tylor is the present Keeper of the Museum, which contains the Pitt-Rivers collection. Among the many donations to this grand collection, we read:—"A special, if melancholy and pathetic, interest attaches to the collection of West African objects formed by the late Miss Mary Kingsley, through whose untimely death the Museum has lost a sincere friend. It was the wish of this gifted and courageous traveller that her West African specimens should eventually come to Oxford, and her brother, Mr. Charles G. Kingsley, to whom the specimens were bequeathed in the first instance, most kindly transferred them at once to the Museum. Amongst them will be noticed several specimens of the now extinct artistic bronze-work of Benin, which has created so much stir of recent years, since the punitive expedition first brought these forgotten treasures to light; also a fetish figure, which is probably the finest of its kind in any Museum." The Report of the "Hope Professor of Zoology" is restricted to entomological acquisitions, of which a very large number are now being acquired and arranged under his direction.

Most British naturalists feel an interest in the now much restricted area in which *Papilio machaon* is found in England. Mr. C. W. Dale has contributed an article to the last issue of the 'Entomologist's Monthly Magazine,' entitled "Historical Notes on *Papilio machaon* in England," which supplies a very useful and timely information on the subject.

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